

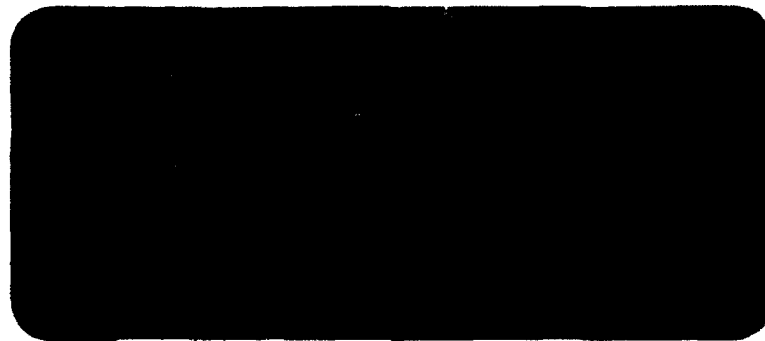
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OMB No. 0704-0188

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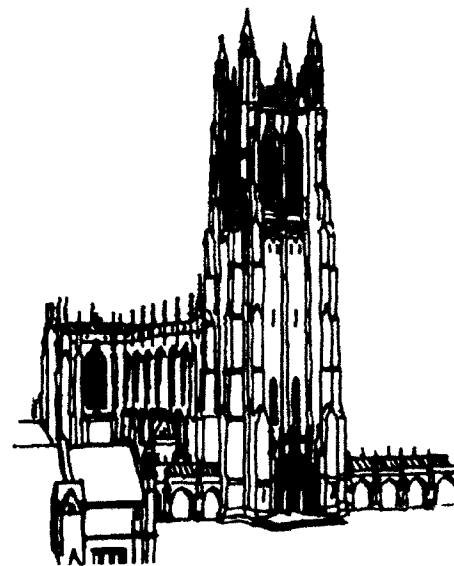
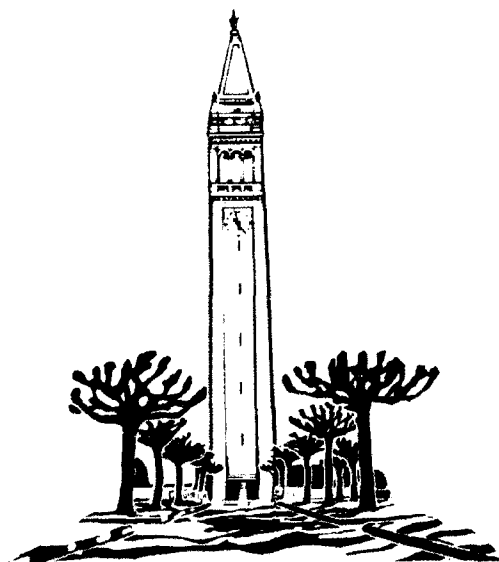
1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 8 Dec 86	3. REPORT TYPE AND DATES COVERED Final: DECEMBER 1986
4. TITLE AND SUBTITLE FACTORS INFLUENCING DISTRIBUTION OF HOUSING IN THE USSR			5. FUNDING NUMBERS C: MDA 903-85-C-0233
6. AUTHOR(S) M. Alexeev			
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Duke Univ. Dept. of Economics Durham, NC 27706			8. PERFORMING ORGANIZATION REPORT NUMBER NONE
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Office of the Secretary of Defense Office of the Director of Net Assessment Rm 3A930, The Pentagon Washington, D.C. 20301			10. SPONSORING/MONITORING AGENCY REPORT NUMBER 87-1300
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY STATEMENT A. Approved for public release; distribution is unlimited.			12b. DISTRIBUTION CODE
13. ABSTRACT Examines factors influencing distribution of housing in the USSR.			
14. SUBJECT TERMS USSR Economy Housing Distribution			15. NUMBER OF PAGES 47
			16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT SAR

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FACTORS INFLUENCING DISTRIBUTION
OF HOUSING IN THE USSR

Michael Alexeev

Paper No. 8, December, 1986

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93-22122



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Foreword

I would like to thank Joseph Berliner of Brandeis University and the editors of these papers, Vladimir Treml and Gregory Grossman, for their valuable comments. Also, I gratefully acknowledge the assistance of Davida Weinbergand and Ali Sayer in the computer processing of the survey data. The responsibility for errors and omissions is, of course, the author's.

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Factors Influencing Distribution of Housing in the USSR

0.1 Introduction

The purpose of this paper is to analyze the factors affecting the distribution of urban residential housing in the Soviet Union. The analysis will utilize both the published Soviet data and the results of the Berkeley-Duke family budget survey of Soviet emigres.

Presumably, residential housing is one of the most strictly rationed goods in the Soviet Union. The Soviet Constitution proclaims the right of Soviet citizens to housing and guarantees this right by "fair allocation under public control" among other things. A Commentary on the Soviet Constitution explains that this allocation is based "not on the financial status of the citizen or his family, not on one's 'ability to pay' but on information of an entirely different kind (e.g., number of people in the family, state of their health, participation in the Great Patriotic War, etc.)." ¹

According to other Soviet sources housing in the USSR is not treated as a market good which can be bought and sold.² Officially the only compelling reason for a household to be placed on a waiting list for improved housing is genuine need. Typically, a family should not be allowed to join the list

1. "Konstitutsiia ..." [1982].

2. See Andreyev, A. [1978] and Pravda, Jan. 20, 1979. (Quoted in Morton [1979]).

unless any of the following conditions apply: their per capita living space is less than 5-7 square meters (these numbers vary from city to city); the household lives in "unfit for living" (nepriгодnye) quarters; the household does not have permanent housing at all; the building is scheduled to be demolished or claimed by the government for other purposes.³

It is well known, however, that the system of housing allocation in the USSR lends itself to corruption and the preferential treatment of certain customers. Numerous examples of second economy activities in housing allocation were provided in Morton [1977].⁴ The Soviet media also reports cases where applicants highly eligible for improvement of their housing situation according to the official criteria are placed at the top of the official waiting list yet cannot obtain this improvement, which suggests that other officially less eligible candidates bypass them in the queue. Needless to say one can strongly suspect the second economy at work in these cases as well.⁵

One way to determine the relative weight of different factors in the

3. See for example, Mushkin [1982] and Antoshkin and Ostrov [1985].

4. For more recent information see Pravda, 06/10/86; Trud, 04/29/86; Sotsialisticheskaya Industriya, 11/12/85.

5. Literaturnaya gazeta, 01/08/86; Trud, 02/17/85. The significance of the second economy in residential housing area can be inferred also from the importance given to it in the recent decree on the "unearned incomes." In addition to the second economy the system of privileges thoroughly described in Matthews [1978] is responsible for a significant proportion of deviations from the "genuine need" criterion in housing allocation in the USSR. However, since the overwhelming majority of the Berkeley-Duke survey respondents did not belong to the nomenclature we will not discuss the effects of the privilege system on distribution of housing.

allocation of housing in the USSR would be to study the distribution of housing among various income groups and social strata. Unfortunately, Soviet sources fail to provide this information. Perhaps for this reason no systematic analysis of housing distribution in the USSR has been published in the West. This paper will attempt to fill this gap by utilizing data from the Berkeley-Duke survey.

It will be shown that income from all sources has a stronger and more statistically significant effect on distribution of housing (including state-owned) than income from official sources only. While this effect is not always caused by any illegal action on the part of a household it nonetheless suggests that administrative rationing of housing in the Soviet Union is often replaced by market forces. In one way or another higher income families end up with greater amount of living space than the lower income ones.

Before proceeding to the main part of the paper it is necessary to identify various categories of urban housing in the USSR. Residential housing in Soviet cities can be owned by the state; housing cooperatives; individuals; and cooperative enterprises or public (obshchestvennye) organizations such as trade unions. The last category appears to be minor and will not be discussed in this paper.

Over 70% of urban residential housing belongs to the state. This housing belongs either to the state enterprises or to the municipal authorities. All cooperative and the majority of state-owned housing consists of apartment buildings. Other types of housing owned by the state include dormitories and youth housing complexes; military quarters; prisons and other types of

housing for institutionalized individuals; and mobile (nomadicheskii) housing. More than 98% of the Berkeley-Duke survey respondents resided either in apartments or in privately owned houses. For this reason we will concentrate on these two housing categories.

The paper is organized in the following way. Section 2 describes the housing conditions of survey respondents and compares them where possible with Soviet data on the entire population. Sections 3, 4, and 5 discuss the factors affecting distribution of state-owned, cooperative, and private housing, respectively, using multivariate regression analysis. Section 6 contains some further observations and concluding remarks.

2.2 Description of Housing Conditions of Survey Respondents

In order to use the Berkeley-Duke survey results for analysis of housing distribution in the USSR it is essential to understand the characteristics of the sample. The survey covered 1061 households from different urban regions of the USSR, the largest city subsamples being from Erevan (191 households) and Leningrad (303 households). The average per capita amounts of living space by different geographic locations in the survey sample and in the USSR are contrasted in Table 1. Let us note that survey households are on the average better endowed with housing than a typical Soviet household. However, only for Leningrad, Uzbekistan outside of Tashkent, Tbilisi, Riga, and Armenia are the differences between the sample means and the means of the parent population substantial. With the exception of Riga the sample means are greater than the population means. These discrepancies can be explained

Table 1. - Living Space per Capita
(square meters)

Region	No. of Respondent Households	Sample Mean	Parent Population Mean
Moscow	54	10.90	10.52
Leningrad	302	13.18	9.61
Rest of RSFSR	90	10.45	8.37
Kiev	40	9.85	9.57
Rest of Ukraine	79	10.90	9.78
Minsk	18	9.81	8.46
Rest of Belorussia	19	8.26	6.57
Tashkent	3	10.30	6.70
Rest of Uzbekistan	35	18.10	6.17
Tbilisi	34	11.61	8.65
Rest of Georgia	12	8.45	10.19
Baku	37	8.98	7.54
Vilnius	29	8.90	5.01
Rest of Lithuania	24	7.65	9.09
Kishinev	24	9.95	8.38
Rest of Moldavia	4	8.21	7.46
Riga	35	6.76	10.78
Rest of Latvia	10	12.12	8.07
Yerevan	190	15.75	7.23
Rest of Armenia	20	19.69	7.57

Source: Ireal (1986a).

by several factors. First, the average family size of the surveyed households is smaller than that of all Soviet urban households. Second, only 0.3 percent of the surveyed households lived in dormitories. For urban areas in the USSR this number is much greater. Third, Soviet homeowners may try to misreport the amount of living space in their houses to authorities because Soviet law prohibits private ownership of houses with over 60 sq. m of living space. This is especially likely to happen in the Southern republics where, according to our survey, individual houses tend to be considerably larger than in the North. Finally, there is the possibility that some respondents, particularly homeowners, indicated the amount of total useful space instead of living space in their answers. Only the last factor, if present, would affect the results of the analysis below. It is hoped, however, that this factor was not significant.

Housing is an extremely heterogeneous commodity. Ideally, its quality must be taken into account. Unfortunately, the survey does not provide much information about the quality aspects of the respondents' housing. It is known, however, in what type of housing the respondent families lived (e.g., separate apartment, communal apartment, separate house); to what category of ownership the dwelling belonged (e.g., state-owned, private, cooperative); and the number of rooms in the dwelling. The breakdown of surveyed households according to these characteristics is given in Tables 2, 3 and 4. In these tables and elsewhere the category "North" includes RSFSR, the Ukraine, Belorussia, Kazakhstan, the Baltic republics, and Moldavia, with the other republics being classified as "South". "Armenians from Armenia" are singled out because in many respects they differ considerably from the rest of the sample. However, with respect to the regression results it proved to

Table 2. - Breakdown of Surveyed Households by Type of Housing

	TYPE OF HOUSING									
	SEPARATE		APARTMENT		SEPARATE		HOUSE		HOUSING REC.	
	IND.	OF	IND.	OF	IND.	OF	IND.	OF	IND.	OF
	FAM.	PERCENTAGE	FAM.	PERCENTAGE	FAM.	PERCENTAGE	FAM.	PERCENTAGE	FAM.	PERCENTAGE
	ES	NT	ES	NT	ES	NT	ES	NT	ES	NT
ENTIRE SAMPLE	597	55.29	278	27.61	118	11.72	14	1.39		
INCLUDING:										
NORTH	400	55.26	243	26.00	15	2.81	13	1.93		
SOUTH	197	55.34	35	10.54	95	25.87	1	0.30		
INCLUDING:										
ARMENIANS FROM										
ARMENIA	99	52.11	7	3.68	83	42.68	1	0.53		
REST OF SOUTH	98	53.01	28	19.72	16	11.27				

Note: The Soviet Union does not publish the corresponding data for the entire country but according to *Pravda* Minister Khrushchev more than 80% of Soviet families resided in separate apartments or houses in 1986 (see *Pravda*, 03/04/86). The corresponding figure for 1980 was "about 80%" (*Pravda* 1980).

be more useful to use a North/South breakdown as opposed to an Armenians-from-Armenia/others breakdown. Apparently, housing conditions of a family depend mostly on the family's characteristics and the general "rules of the game" for housing allocation existing in a region.

It must be noted that state-owned apartments were prevalent among the surveyed households irrespective of the size of the city of residence. Cooperative apartments were found mostly in large cities (population over 1 million) while private houses were encountered in small (population under 100,000) and medium size cities (see Table 5). This relationship between the type of housing ownership and size of the city of residence and the fact that our sample is biased towards big city residents explains the difference between the shares of state, cooperative, and private housing in our sample and in the underlying parent population. Normalizing our sample by city size would bring the proportions of state-owned housing in our sample to 68.7%, cooperative housing -- to 4.6%, and private housing -- to 26.7%.

It is interesting to note that the type of residence ownership seems to be related to some other important characteristics of a household and the relationship has essentially the same pattern for the North and for the South. Table 6 presents means of the selected variables broken down by region and type of housing ownership. Notice that the following relationships hold for both regional subsamples.

Of the three types of ownership we consider in this paper the families living in state-owned apartments fared the worst. On average they had the least amount of living space per capita, the greatest number of persons per room, the smallest family sizes, and the lowest per capita incomes from all

Table 3. - Breakdown of Surveyed Households by Form of Housing Ownership

	TYPE OF HOUSING OWNERSHIP			
	STATE-OWNED	COOPERATIVE	APARTMENT	PRIVATE HOUSE
	HOUSING SEC	HOUSING SEC	HOUSING SEC	HOUSING SEC
	LIVING SPACE	LIVING SPACE	LIVING SPACE	LIVING SPACE
	TOTAL PERCENT	TOTAL PERCENT	TOTAL PERCENT	TOTAL PERCENT
	SPACE : MT	SPACE : MT	SPACE : MT	SPACE : MT
	(sq. m)	(sq. m)	(sq. m)	(sq. m)
ENTIRE SAMPLE	23733	7515	3422	9482
	11.28	11.28	1.74	3.89
INCLUDING:				
NORTH	15815	8135	2572	1.96
	6.69	2.38	758	4.17
SOUTH	7918	6212	850	5.15
	75.39	316	3.31	
INCLUDING:				
ARMENIANS FROM	3656	4168	720	6.38
	5038	43.08	316	5.85
REST OF SOUTH	4262	8521	130	3.57
	1402	11.27		

Note: According to an estimate made on the basis of the official Soviet data the share of cooperative housing in urban residential housing stock in the USSR was 4.5%. This estimate implies that state-owned urban housing constituted 71% of the total with privately owned housing accounting for the remaining 29.5%. The estimate of the share of cooperative housing was arrived at on the basis of the March 1977 information about the total "socially-owned" housing stock, and an estimate of the stock of cooperative housing in the Soviet Union obtained as the sum of all cooperative housing space built in the USSR from 1963 through 1977 as reported in various volumes of *Building* and estimated in *Iron* (1982). Cooperative residential housing was virtually non-existent before 1963 and presumably, only a negligible amount of it was destroyed during the 1963-1977 period. Also, even though it is possible to organize a housing construction cooperative in rural areas the number of these is assumed to be too small to affect our estimate. The 4.5% estimate is in line with information provided by *Spetsgiz* (August 5, 1975) which reported that 4% of the urban housing stock in USSR belonged to housing cooperatives.

Table 4. - Distribution of Surveyed Households by Number of Rooms in Dwelling

	NUMBER OF ROOMS IN DWELLING									
	ONE ROOM	TWO ROOMS	THREE ROOMS	FOUR ROOMS	FIVE ROOMS	SIX ROOMS	SEVEN ROOMS	EIGHT ROOMS	NINE ROOMS	TEN AND MORE
	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.	NO.
	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT	PERCENT
ENTIRE SAMPLE	288	78.71	479	47.76	196	19.54	40	3.99		
INCLUDING:										
NORTH	246	36.36	316	46.80	97	14.46	16	2.38		
SOUTH	44	13.25	165	49.70	99	29.82	24	7.23		
INCLUDING:										
ARMENIANS FROM										
ARMENIA	25	13.16	89	46.84	63	33.16	13	6.84		
REST OF SOUTH	19	13.38	76	53.52	36	25.25	11	7.75		

Table 5. - Breakdown of Housing Ownership Forms by
Size of Respondent's City
(Entire Sample)

	TYPE OF HOUSING OWNERSHIP									
	STATE-OWNED/COOPERATIVE					PRIVATE				
	DWELLING	APARTMENT	HOUSE	NEC		DWELLING	APARTMENT	HOUSE	NEC	
	IND.	IND.	IND.	IND.		IND.	IND.	IND.	IND.	
	OF	OF	OF	OF		OF	OF	OF	OF	
	TEAM	TEAM	TEAM	TEAM		TEAM	TEAM	TEAM	TEAM	
	PERCENTAGE	PERCENTAGE	PERCENTAGE	PERCENTAGE		PERCENTAGE	PERCENTAGE	PERCENTAGE	PERCENTAGE	
	ES	NT	ES	NT		ES	NT	ES	NT	
SIZE OF CITY										
BELOW 50,000	27	67.50				9	22.50	4	10.00	
51,000-100,000	11	68.75				3	18.75	2	12.50	
101,000-500,000	161	86.10	10	5.25	8	4.28	8	4.27		
501,000-1 MILLION	178	47.24	10	6.29	8	26.32	9	3.13		
INCLUDING EREVAN	90	47.12	13	6.81	80	41.88	9	4.13		
OVER 1 MILLION	428	80.45	73	13.72	13	2.44	18	3.39		
INCLUDING LENINGRAD	245	80.86	29	12.87	4	1.22	15	4.95		

sources.⁶ Members of housing cooperatives enjoyed the highest per capita income levels both from official and from all sources. Their housing conditions, however, belonged to the intermediate range. Finally, the households which owned their houses enjoyed the best housing conditions of the three groups. They tended to have more living space per capita and fewer persons per room and had larger families than the other respondents.⁷ Also, while homeowners earned the least from official sources, their total incomes were far greater than those of the renters of state-owned apartments.

Table 6 also shows that the Southerners on average enjoyed more living space, had more persons per room,⁸ and earned less income from official sources but were considerably more affluent despite having larger families than the Northerners in each one of the three major housing categories.

The consistency of the patterns suggests that we should investigate the three housing category separately. Also, in our regression analysis we should allow for differences between geographical regions.

6. The fact that state-housing residents appear to be better off than owners of private houses (by analysis of the official income statistics only) but were actually worse off (if one considers total income) is instructive. It implies that by and large residents of state-owned apartments are not "unfairly" subsidized by the state housing subsidy. They do seem to be the poorest major housing group in the USSR.

7. Even in privately owned housing, however, there were more people than rooms.

8. The non-normalized average number of people per room for the aggregate category "North" (column 2 of table 6) turned out to be slightly greater than for the "South." This outcome has to do with the fact that in our survey unproportionately few Northerners lived in privately owned houses (see table 3) where the number of people per room was by far fewer than in other housing categories.

Table L - Per Capita Averages of Selected Survey Variables
Broken Down by Type of Housing Ownership

TYPE OF HOUSING OWNERSHIP: STATE OWNED DWELLINGS

	LIVING	OFFICIAL	TOTAL	NUMBER
	SPACE	INCOME	INCOME	OF
	(sq. ft.)	(1960/year)	(1960/year)	ROOMS
ENTIRE SAMPLE	753	11,497	754,1152.97	754,2003.31
INCLUDING:				
NORTH	548	11,222	549,1216.41	549,1894.41
SOUTH	205	12,077	205,1011.57	205,2225.21
ARMENIANS FROM:				
ARMENIA	84	14,451	84,1145.51	84,2971.84
REST OF SOUTH	121	10,587	121,1578.07	121,1773.37

TYPE OF HOUSING OWNERSHIP: COOPERATIVE APARTMENTS

	LIVING	OFFICIAL	TOTAL	NUMBER
	SPACE	INCOME	INCOME	OF
	(sq. ft.)	(1960/year)	(1960/year)	ROOMS
ENTIRE SAMPLE	97	12,131	97,1380.51	97,2527.91
INCLUDING:				
NORTH	80	11,431	80,1445.41	80,2176.71
SOUTH	17	14,917	17,1067.21	17,3873.11
ARMENIANS FROM:				
ARMENIA	12	17,141	12,1070.21	12,1360.41
REST OF SOUTH	5	8,677	5,1057.61	5,12175.31

Table 6 (continued)

TYPE OF HOUSING OWNERSHIP: PRIVATE HOUSES

	LIVING	OFFICIAL	TOTAL	NUMBER
	SPACE	INCOME	INCOME	OF
	(sq. ft.)	(1960/year)	(1960/year)	ROOMS
ENTIRE SAMPLE	1137	19,011	1137,1995.24	1137,2862.51
INCLUDING:				
NORTH	16	14,541	16,1180.71	16,2083.16
SOUTH	97	19,641	97,2910.51	97,3984.84
ARMENIANS FROM:				
ARMENIA	81	19,531	81,2922.71	81,3927.84
REST OF SOUTH	16	20,031	16,1119.71	16,1875.16

TYPE OF HOUSING OWNERSHIP: HOUSES WEC

	LIVING	OFFICIAL	TOTAL	NUMBER
	SPACE	INCOME	INCOME	OF
	(sq. ft.)	(1960/year)	(1960/year)	ROOMS
ENTIRE SAMPLE	29	12,077	29,1381.21	29,2431.31
INCLUDING:				
NORTH	28	12,231	28,1322.51	28,2033.51
SOUTH	11	11,701	11,1428.91	11,3421.11
ARMENIANS FROM:				
ARMENIA	11	11,701	11,1428.91	11,3421.11

Per capita amounts of living space and incomes in the USSR were growing at different rates during the 1970s. Locally, the survey variables should have been adjusted for differences in the year to which the respondents were referring in their answers. Such an intertemporal adjustment using the coefficients from Tremblé (1986) was performed under the assumption that the dynamics of both total and second economy incomes coincided with that of official wages. However, since this assumption appears to be rather arbitrary and because the regression results based on the adjusted and unadjusted data were very close the following discussion uses the unadjusted data.

0.3 Analysis of Factors Determining Distribution of State-Owned Housing

State-owned housing constituted approximately 71% of all urban residential housing in the USSR in 1977 (see a Note to Table 3). It must be noted that rents in state-owned apartments are highly subsidized by the state. Rental payments by residential users do not cover even current operating expenses of the housing authorities, not to mention the depreciation of the buildings and major repairs (kapital'nyi remont). According to Kolotilkin (1979), the costs of maintaining the residential housing stock including major repairs and administrative expenses incurred by the municipal authorities in 1977 amounted to 5.25 rubles per square meter of living space, while annual residential rents in the USSR are normally set at 1.584 rubles per square

meter.⁹ These figures are generally supported by another source which reported that the state subsidy covers two-thirds of the total costs of maintaining state-owned residential buildings. In 1977 this subsidy reached 5.6 billion rubles. Rental payments by residents of state-owned apartments constituted only about three percent of the budget of an average family of workers or employees.¹⁰

Low rents combined with the relatively small stock of residential housing in the USSR lead to a high and persistent excess demand for state-owned housing. The existence of excess demand necessitates employment of various non-price rationing mechanisms to allocate scarce apartments among consumers. One of these mechanisms is a waiting list. However, even placement on a waiting list has to be controlled by certain criteria. As was indicated in the introduction to this paper the officially proclaimed allocative criteria are based on genuine need for improvement in the household's housing conditions. The lack of relevant data makes it impossible to verify directly to what extent these or other criteria are

9. This rate was set in the late 1920s as the maximum rent paid by the individuals in the highest income bracket. Since then the increase in nominal wages rendered all lower rental rates irrelevant. However, renters pay triple this rate for living space in excess of the so-called "sanitary norm" which is usually equal to 9 sq. meters per person. Some categories of renters, such as personal pensioners, military officers, etc., enjoy lower rates while self-employed individuals and priests pay higher rents (Krupitskii [1978]). The same source reports that in some cases rent could be increased by up to 25% for housing which incurs operating losses. However, according to Mushkin (1982) this increase is not imposed in most cases. It must be noted here that the local housing authorities also receive rents and other payments from the non-residential users of residential buildings such as stores or offices.

10. Markhoz 1977.

applied in practice. However, the survey data allow an indirect way to approach this question.

The first important issue is to what extent the official status of a household contributes to its allotment of housing. Of course, the official status of a family is difficult to measure but the per earner income from official sources can serve as a good proxy for it. A priori it is not clear whether the authorities consider housing as a substitute for money income or as a complement to it. Some circumstantial evidence indicates that housing is usually a complement to a person's money wage. Thus, a list of social and occupational categories of people eligible for additional housing (i.e., above the minimum "sanitary norm" of 9 square meters per person) consists mostly of high income, high status categories.¹¹ The list of persons designated to receive housing during the coming year is based among other things on "socially useful activity" (Landkof et al. [1970]). In addition, Daniel [1985] reports that allocation of state-owned residential housing in Hungary is supposed to conform to the main principle of remuneration under socialism, i.e., "according to work done," and to be a complement to money wages. While principles of state-owned housing allocation in Hungary do not have to be identical to those in the USSR it can be argued that some similarity in such fundamental respects is likely to exist. It is worth repeating, however, that no Soviet source indicates any straightforward relationship between one's social or income status and the allocation of housing. If anything they deny the existence of such a relationship (see pp.

11. Such as personal pensioners, university professors, distinguished artists, etc. (Matthews [1978], Barry [1977]).

1-2 of the introduction to this paper). We will have to analyze the survey data to verify the existence and the sign of this relationship in the actual distribution of state-owned housing in the Soviet Union.

It is even more important for the purpose of this study to determine to what extent distribution of state-owned housing in the USSR is affected by the second economy. Again, it is not possible to analyze the issue in a straightforward manner but the survey provides opportunities for an indirect approach. In addition to their income from official sources the survey respondents reported their income from unofficial, second economy sources. This gives us an opportunity to investigate the influence of the total income of households on the actual distribution of housing among the respondents. Obviously, no officially endorsed criteria could allocate housing on the basis of income earned in the second economy. Therefore, if a strong correlation is found between total income and consumption of housing we could conclude that distribution of state-owned housing in the USSR is determined to a large extent by the (underground) market and not strictly by officially sanctioned administrative rationing.

Procurement of improved state-owned housing through the second economy can be accomplished in at least two ways. One can either bribe the officials responsible for allocation of housing or one can use exchange of apartments facilitating the exchange with a side-payment to the household moving to the smaller dwelling. In the first case the bribe does not always have to be

given in cash. It can involve exchange of favors instead.¹² Also, well-off parents can buy membership in a housing cooperative for children thus improving their own housing conditions.¹³ This is not in itself an illegal action. However, the requirement of "genuine need for improved housing" necessary for cooperative membership eligibility often has to be bypassed with the help of bribes and connections. Even when the purchase of a cooperative apartment is legal it still obviates the rules for administrative rationing of state-owned housing in the USSR.

To be sure, the second economy market is not the only mechanism responsible for deviations from the official rules of housing allocation. Housing can be assigned outside of the official queue by the management of an enterprise trying to lure especially "valuable" workers or employees by providing improved housing for them. Being "valuable," these employees usually have relatively high official as well as total incomes. Enterprises can often get away with this and other types of improprieties because they control a significant share of state-owned residential housing and are allowed to use some of it for improvement of the housing conditions of labor veterans and

¹² For references see Morton [1977] and other sources mentioned in footnote 4. As regards the apartment exchange, the authorities sometimes attempt to prohibit ostensibly inequitable trades. However, according to the existing law approval of an exchange cannot be denied unless it is proven that some side-payments are involved (Mushkin [1982]).

¹³ In the poorer families children are often forced to stay with their parents long after they grow up and start working. It is not unusual even for a married couple to continue sharing an apartment with parents of one of the spouses.

"leading workers" (peredoviki proizvodstva).¹⁴ As we shall see later, however, total income appears to have a greater and more statistically significant effect on housing consumption than income from official sources only. The cases referred to in this paragraph do not explain this phenomenon.

Another factor likely to exert a strong influence on the per capita amount of living space is the size of a household. This influence is expected to be negative since usually an increase in family size cannot immediately result in procurement of a larger dwelling. A lag exists between a household's decision to increase its amount of living space and the actual increase. It is also true, of course, that a decrease in family size would lead to at least a temporary increase in the amount of per capita living space enjoyed by the household. Decreases in family size are likely to be experienced by older respondents, especially pensioners.¹⁵ Incidentally, because of the lag between a household's decisions and the actual changes in the amount of living space, a respondent's age is expected to have positive influence on the amount of per capita living space in a household. In addition to this time lag, a household's perception of its housing situation in per capita terms would normally depend on family size because of the economies of scale. A 40 square meter apartment for four people is probably more

¹⁴ Mushkin [1982].

¹⁵ For this reason, and because pensioners living without their children represent quite a distinctive group in other respects, a separate set of regressions which did not include observations on pensioner families was analyzed. The results did not prove to be significantly different from the results of the regressions containing all observations.

acceptable (in terms of living space) than a 30 square meter apartment for three. Therefore, given the same amount of living space per capita a larger household may be less eager to attempt to obtain a larger apartment.¹⁶ The existence of these economies of scale in the Soviet Union is supported by the results of a survey reported in Valentei [1973]. The ideal amount of per capita living space indicated by respondents to that survey was a decreasing function of the size of a household. This held true for respondents from all occupational categories participating in the survey. The average elasticity of demand for living space with respect to family size for the entire sample was approximately -0.4.

A separate interesting issue is the difference between the distribution patterns of state-owned housing in the Southern and Northern republics of the USSR. It is generally believed that the second economy is more developed in the Soviet South. With respect to state-owned housing this implies that the influence of market forces on its distribution should be greater than in the North, no matter which part of the country enjoys better housing on the average. For this reason, we would expect the influence of total income on consumption of housing for the former residents of the Southern republics to be more statistically significant and closer to the estimates obtained for other countries than for the emigres from the North. On the other hand, the influence of variables associated with non-price rationing (official income, family size, and age of the respondent) is expected to be relatively smaller

16. Of course, the economies of scale in housing are limited due to the considerations of privacy and the fact that a household living in a standard Soviet apartment would have to share a relatively small kitchen and a single bathroom.

or at least the same for the Southerners. In the case of family size, however, one should keep in mind that its negative effect on the per capita consumption of housing is caused not only by the lag between the increase in family size and state housing allocation, but also by the economies of scale in housing use. Therefore, it is not possible to form any well-founded a priori expectations about the relationship between the coefficients of family size in the North and in the South.

In view of the discussion above, multivariate regressions estimated for households residing in state-owned apartments included per capita living space (LIVSPACE) as a dependent variable and per earner income from official sources (OFINC), total per capita income (TINC), family size (FAMSIZEL), and age of a respondent (RESPAGE) as independent variables. All variables are in logarithms implying that the underlying housing consumption function has Cobb-Douglas form. Two separate regressions were estimated for the Northern and the Southern subsamples. In general, the results of the regression analysis presented in Table 7 conform to intuition.¹⁷

The strongest influence on per capita consumption of housing was exerted by family size.¹⁸ However, the most interesting result has to do with the

17. Even though official income is part of total income the fact that these variables are calculated per official income earner and per every family member, respectively, allows to include both of them as independent explanatory variables. As was indicated above OFINC variable serves as a proxy for official status of a household while TINC picks up the influence of money income.

18. This is especially important since the surveyed households were on the average considerably smaller than a typical Soviet household (average size of a surveyed household residing in a state-owned apartment was 2.74 compared to the average family size of 3.3 for the Soviet urban population). Therefore,

Table 7. - Multivariate Regression Estimates: State-Owned Housing
(All Variables are in Logarithms)

Independent Variables	Dependent Variable - Per Capita Living Space	
	Equation 1 (North)	Equation 2 (South)
INTERCEPT	-0.415 ²¹ (-1.749)	-0.176 ² (-1.486)
OFFICIAL INCOME	0.008 ³ (1.255)	0.006 ² (0.237)
TOTAL INCOME	0.225 (8.507)	0.247 (8.491)
FAMILY SIZE	-0.520 (-16.762)	-0.605 (-7.844)
AGE OF RESPONDENT	0.413 (8.091)	0.310 (3.483)
Number of observations	598	206
Adj. R-square	0.508	0.609
		n/a

¹ - Not significant

²¹ - Significant only at 10% significance level

Note: The figures in parentheses are values of the t-statistics. The t-statistics for the differences in coefficients for North and South were obtained from a regression including a dummy variable SOUTH and its products with the other independent regression variables (see p. 25 of this paper).

coefficient of the total income variable. This coefficient represents the elasticity of housing consumption with respect to per capita money income. Even controlling for per earlier income from official sources, total per capita income is a major factor determining consumption of housing. This implies that the administrative rationing of state-owned housing in the USSR did not result in eliminating market forces as an allocative mechanism in consumption of housing. Households were able to improve their housing through unofficial second economy channels. The income elasticity of consumption of state-owned housing is estimated at 0.24 and 0.35 for North and South, respectively. These figures are smaller than the estimates obtained for the U.S. but close to the estimates for the U.K.¹⁹ However, one must bear in mind the peculiarities of the market for state-owned housing in the USSR. First, not all apartments are obtained with the help of bribes and side-payments. Administrative non-price rationing obviously plays an important role, even in a system permeated with corruption and other second economy activities. Second, procurement of state-owned housing through the second economy, however widespread, is associated with certain risks both for the bribe takers and the bribe givers.²⁰ Presumably, this risk increases with the increase in the disparity between the officially prescribed amount of living space and the demand of a household to be realized through the

the discrepancy in per capita living space between the survey households and the Soviet averages apparent in Table 1 could be explained at least in part by the differences in the family size.

19. See for example Lesser (1953) where the income elasticity of demand for housing in the U.K. was estimated at 0.38, and Houthaker and Taylor (1970) who estimated the income elasticity in the U.S. to be 1.04.

20. Vechernina Moskva 12/26/85; Medelia, no. 32, 1985.

second economy. Thus, if a household pays a bribe to increase its housing consumption by 5 square meters against a standard allocation practice in a particular locality the risk of detection and possibly the degree of punishment if caught would be proportionally smaller compared to an illegal additional allocation of 15 or 20 square meters. The same can be said about other violations of housing allocation laws. Finally, with some exceptions no family in the USSR is supposed to occupy more than 60 square meters of living space. Therefore, as far as state-owned housing is concerned households are limited by this number irrespective of their ability to buy more through the second economy. All these considerations tend to decrease income elasticity of consumption of state-owned housing in the Soviet Union.

The coefficients associated with income from official sources turned out to be positive, but not significant statistically. The strong positive influence of respondent's age points to the importance of a waiting period for procurement of larger state-owned apartments. Also, it can be argued that to some extent age serves as one of the proxies for official status of a respondent. In this case coefficients of official income and age could split the positive influence of status on housing allocation.

In order to determine whether the coefficients of the regression based on the Northern subsample are different from the corresponding coefficients for the Southern subsample a dummy variable SOUTH was introduced. This variable has the value of 1 if a household came from a Southern republic and the value of zero otherwise. Therefore, the coefficient of SOUTH represents the difference between the intercepts of the two subsamples. Similarly, the

coefficient of the product of SOUTH and TINC reflects the differences in the income elasticity of state-owned housing consumption; the SOUTH*FAMSIZE coefficient shows to what extent the influence of family size on per capita housing distribution in the South is different from that in the North, and so on.

These differences obtained with the help of the dummy variable SOUTH are shown in column 3 of Table 7. The corresponding t-statistics indicate that only the total income elasticities differ significantly between North and South. The fact that income elasticity calculated for the Southern subsample is greater supports the commonly held perception that administrative rationing is less important in allocation of scarce goods in general, and state-owned housing in particular, in the South of the USSR than it is in the North. The other coefficients of equations one and two are statistically indistinguishable.

The regression analysis conducted above assumed that living space in state-owned apartments was homogeneous. Indeed, as was mentioned before our survey did not provide data to adequately evaluate the quality of respondents' housing. Perhaps the only information relevant to the issue of housing quality contained in the survey pertains to the distinction between single-family and communal apartments. It is well known that even under socialism communal quarters are generally considered to be inferior to single-family ones. Our survey does not allow derivation of any objective measure of the trade-offs between the privacy of a single-family dwelling and the amount of living space for Soviet households. For this reason, we chose quite arbitrarily to use a discount rate of 30% applied to per capita living

space in communal apartments to account for their relative inferiority. In other words, the per capita amount of living space possessed by households residing in communal apartments was multiplied by the factor of 0.7. The modified variable was then used as a dependent variable in regressions similar to those analyzed above. The data adjustment resulted in some changes of the regression coefficients in both regional subsamples. In particular, the total income coefficients are greater for modified data. However, the data adjustment lead to some reduction in the explanatory power of the regressions. The results of regression analysis using modified living space data are presented in Table 7A.

Before proceeding to the next topic it may be useful to reiterate the most important finding of the regression analysis presented in this section: elasticity of consumption of state-owned housing with respect to total per capita income is positive and highly statistically significant both for the Northern and the Southern subsamples, implying the great importance of market forces and the second economy for distribution of state-owned housing. Soviet households manage to bypass the strict rules of administrative rationing and obtain the amount of housing which corresponds at least to some extent to their monetary wealth.

0.4 Cooperative Housing

Another form of "socialized" housing in the USSR is represented by so-called

Table 7A. - Multivariate Regression Estimates Adjusted for Inferior Quality of Communal Apartments: State-Owned Housing (All Variables are in Logarithms)

Independent Variables	Dependent Variable - Per Capita Living Space		
	Equation 1 (North)	Equation 2 (South)	Difference between coefficients of eq's 2 & 1
INTERCEPT	-1.921 (-5.513)	-1.624 (-3.099)	0.297 ¹ (0.446)
OFFICIAL INCOME	0.017 ²² (1.961)	0.008 ¹ (0.297)	-0.005 ¹ (-0.290)
TOTAL INCOME	0.308 (8.508)	0.414 (8.784)	0.106 ²² (1.494)
FAMILY SIZE	-0.293 (-9.686)	-0.278 (-6.340)	-0.015 ²² (-1.721)
AGE OF RESPONDENT	0.573 (8.571)	0.402 (2.914)	-0.171 ¹ (-1.217)
Number of observations	598	206	804
Adj. R-square	0.373	0.588	n/a

²² - Significant only at 10% significance level

¹ - Not significant

Note: The figures in parenthesis are values of the t-statistics. The t-statistics for the differences in coefficients for North and South were obtained from a regression including a dummy variable SOUTH and its products with the other independent regression variables (see p. 25 of this paper).

"housing construction cooperatives" (zhilishchno-stroitel'nyi kooperativ).²¹ While the share of cooperative housing in all urban housing remains under 5%, cooperative ownership is being promoted by Soviet officials as one of the ways to solve the "housing problem" in the country (Pravda, February 26, 1986). At the same time housing cooperatives often allow a household to improve its housing conditions legally even if the household is not eligible for such improvement by standards used in the allocation process for state-owned apartments. Thus, cooperatives at least partially provide a way of circumventing administrative rationing of housing without breaking the law.

A housing cooperative is a voluntary organization of citizens who wish to improve their housing conditions by building an apartment building(s) using their pooled resources and government credit. The members do not legally own their apartments but become shareholders in a cooperative although some important rights usually associated with ownership accrue to them. An apartment is "granted" to a shareholder for permanent use and it is fairly difficult to take it away (Barry [1977], Vatman et al [1982]). In fact, the housing cooperative appears to be a rather democratic organization -- not only by Soviet standards.²²

21. It can be argued that this form of housing ownership belongs to the category of private. Indeed, it appears that a member of a housing cooperative considers his apartment his property. However, since the detailed analysis of the nature of property rights on cooperative housing is outside the scope of this paper we chose to follow the Soviet authors who refer to housing cooperatives as a form of "socialized" property.

22. To be sure, this democracy is not absolute. An interesting literary description of an almost successful attempt to violate it is provided in Volnovich [1976].

Prior to 1982, in order to join a cooperative a person had to pay at least a 40% downpayment (30% in some areas) and then the balance of the apartment cost in installments over a period of 10 to 20 years at 0.5% interest (Vatman et al [1982] p. 49). As of August, 1982, the typical downpayment was lowered to 30% (see "Resheniia..." [1983]). In addition, members of a cooperative pay the repair and maintenance costs of their buildings. According to Kolotilkin [1979] the expenses to local housing authorities for repairs and maintenance of state-owned housing stock amounted to 4.58 rubles per square meter of living space in 1977. The same source estimates that renters of state-owned apartments paid about 1 ruble per square meter for maintenance and repairs performed privately or using their own labor. Assuming that the cost of repairs of cooperative buildings is close to that of state-owned housing stock we can estimate the repair and maintenance payments of the members of cooperatives at 5-6 rubles/m² per year.²³

Let us now turn to the survey respondents. About 9% of the households, representing 234 people, lived in cooperative apartments during their last normal year in the Soviet Union. They accounted for 7.45% of all living space occupied by survey respondents. This share is considerably larger than that for all Soviet urban population which we estimated at 4.5% in 1977 (see Note to Table 3). But this discrepancy does not affect the main points of

23. Our survey data indicate that residents of state-owned apartments spend slightly more than 1 ruble per square meter of living space on privately performed repairs annually. However, the corresponding figures for members of housing cooperatives are close to 2 rubles per square meter in the North and 2.6 rubles per square meter in the South. In addition, cooperative housing residents contribute on average 5.2 rubles per square meter more for repairs as part of their regular monthly payments to the cooperative.

Table 8. Selected Characteristics of Cooperative Apartments (Survey Data, Entire Sample)

Variable	No. of observations	Mean	Standard deviation	Std error of mean
Size of apartment (sq.m)	78	25.33	13.94	1.58
Number of rooms	78	2.22	0.78	0.09
Price of apartment at purchase (rubles)	79	6155	9772	1099
Downpayment (rubles)	78	2361	1158	131
Additional costs incurred in acquiring apartment (rubles)	77	440	1011	115
Monthly payments (rubles)	77	48.36	37.16	4.74
Length of mortgage (years)	75	14.37	4.35	0.50

Note 1: According to these data a typical downpayment amounted to approximately 38% of the cost of a cooperative apartment which is consistent with the estimates made on the basis of the published Soviet data. According to our calculations, an average monthly payment of principal and interest implied by the reported length of a mortgage and the interest rate of .53 was 25.14 rubles. This is about 15 rubles less than the average reported monthly payment. Most of this difference can be attributed to the regular monthly payments for maintenance and other expenses of a cooperative. Notice also sizeable additional costs incurred by members of a cooperative in acquiring their apartments. These costs represent expenditures on finishing work, side-payments, gifts, bribes, etc.

Note 2: The price of a cooperative apartment has varied over the years. Our sample was not large enough to make reliable estimates of these prices for particular years but an upward trend in them was clear. For estimates of these prices based on the official Soviet data see Trend (1986).

this presentation. Other survey data relevant to housing cooperatives are shown in Table 8.

Cooperative housing construction is subsidized by the state only through low interest mortgage rates (typically 0.5% per year, according to various sources).²⁴ Nonetheless, a considerable amount of non-price rationing is involved in its allocation. Thus, one of the eligibility conditions for membership in a cooperative in Moscow is the "need for improved housing." A household in need is defined as one which has less than 7 m² of living space per capita (Vatman et al., p. 29). However, it must be noted that there is no uniform requirement of this kind for other localities. Apparently, in many republics the "housing need" necessary for cooperative eligibility is not defined at all. In some localities there also exists an upper limit to the per capita living space which a household could obtain in a cooperative apartment. In the Ukraine it is 13.65 m² per person, in Leningrad 15 m²/person, etc. But again, these limits are not established everywhere (Vatman et al., pp. 78 and 275).

Despite the restrictions, the role of administrative rationing in allocation of cooperative housing appears to be considerably less important than in the allocation of state-owned dwellings. For this reason we would expect official income (a proxy for official status) to exert a relatively small

24. Compared with 2-3% interest paid on savings accounts. Government regulations explicitly state that the cost of building cooperative apartment houses must be the same as in the building of state-owned houses. Accordingly, we can assume that the final purchase price paid by cooperative member for his apartment is neither subsidized nor taxed.

Table B. - Selected Characteristics of
Cooperative Apartments
(Survey Data, Entire Sample)

Variable	No. of observations	Mean	Standard deviation	Std error of mean
Size of apartment (sq.m)	78	35.33	13.94	1.58
Number of rooms	78	2.22	0.78	0.09
Price of apartment at purchase (rubles)	79	6155	3772	1099
Downpayment (rubles)	78	2361	1158	131
Additional costs incurred in acquiring apartment (rubles)	77	440	1011	115
Monthly payments (rubles)	77	40.36	37.16	4.24
Length of mortgage (years)	75	14.57	4.25	0.50

Note 1: According to these data a typical downpayment amounted to approximately 38% of the cost of a cooperative apartment which is consistent with the estimates made on the basis of the published Soviet data. According to our calculations, an average monthly payment of principal and interest implied by the reported length of a mortgage and the interest rate of .5% was 25.14 rubles. This is about 15 rubles less than the average reported monthly payment. Most of this difference can be attributed to the regular monthly payments for maintenance and other expenses of a cooperative. Notice also sizeable additional costs incurred by members of a cooperative in acquiring their apartments. These costs represent expenditures on finishing work, side-payments, gifts, bribes, etc.

Note 2: The price of a cooperative apartment has varied over the years. Our sample was not large enough to make reliable estimates of these prices for particular years but an upward trend in them was clear. For estimates of these prices based on the official Soviet data see Treml (1985).

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effect, if any, on the distribution of living space in cooperative housing. Total income, however, should be an important explanatory variable as membership in a cooperative is quite costly (see Table 8). The influence of family size can be expected to be negative for essentially the same reasons as in the case of state-owned housing, but the relative importance of those reasons would be different. Namely, the lag between a household's decision to join a cooperative and the actual allocation of an apartment would be short and the main influence would be exerted by the economies of scale in housing consumption. The shortness of the lag should also reduce the positive contribution of the respondent's age toward the amount of per capita living space enjoyed by a household. In addition, the data point to the tendency for relatives of survey respondents to play a major role in providing financing for the respondents' membership in a housing cooperative. Out of 79 households who did not obtain a cooperative apartment by exchange, 46 or 58% used either a loan or a gift from relatives as downpayment. Not surprisingly, at the time of joining a cooperative 90% of the respondents who indicated they had received help from their relatives were younger than 35 years of age. Due to this tendency it is quite possible that the effect of the respondent's age would not turn out to be statistically significant.

The results of the multivariate regressions are presented in Table 9. A careful analysis of the data revealed that despite a fairly large number of observations (81) the parameter estimates for the Northern subsample were strongly dependent upon just one surveyed household which enjoyed an unusually high level of income (over 8,000 rubles per capita per year) but

resided in a small cooperative studio which provided only 6.3 m^2 of living space per person. Because of the profound effect this one household headed by an artist had on the estimates it was considered an outlier and deleted from the data set. The coefficients associated with income from official sources and age of respondent are insignificant both for the Northern and Southern subsamples of the survey (see equations 1 and 2, respectively). Total income's coefficients both for the North and for the South were significant. The family size coefficient for the Southern subsample was not significant, perhaps due to the relatively small number of observations in it. Dropping the official income and respondent's age variables lead to some improvement in the statistical properties of the regression equations increasing the values of t-statistics of the remaining coefficients and the adjusted R-square (see equations 3 and 4 in Table 9).²⁵ The dummy variable SOUTH was again used to determine the statistical significance of the differences between the regression coefficients for the Northern and Southern subsamples (for explanation of the technique see p. of this paper).

The influence of family size is weaker in the Southern subsample at less than the 2% level of significance. At the same time the income elasticity of cooperative housing consumption in the South is greater than in the North (the significance level is less than 1%).

The rather low value of income elasticity of cooperative housing consumption for the Northern subsample is somewhat unexpected. Even though it was not

25. The F-test showed that the null hypothesis of the dropped coefficients being zero could not be rejected either for the Northern or the Southern subsample.

Table 9. - Multivariate Regression Estimates: Cooperative Housing
(All Variables are in Logarithms)

Independent Variables	Dependent Variable - Per Capita Living Space			
	Equation 1 (North)	Equation 2 (South)	Equation 3 (North)	Equation 4 (South)
INTERCEPT	1.916 (2.483)	-3.911 ² (-1.932)	1.807 (3.307)	-2.207 ² (-1.986)
OFFICIAL INCOME	-0.009 ² (-0.436)	0.186 ² (0.835)	-	-
TOTAL INCOME	0.184 ² (2.452)	0.572 (4.493)	0.171 (2.585)	0.572 (5.011)
FAMILY SIZE	-0.156 (-6.838)	0.092 ² (0.331)	-0.663 (-7.322)	0.164 ² (0.636)
AGE OF RESPONDENT	-0.041 ² (-0.302)	0.105 ² (0.365)	-	-
Number of Observations	82	17	82	17
Adj. R-square	0.523	0.606	0.534	0.631

² - Significant only at 10% significance level

² - Not significant

Note: The figures in parenthesis are values of the t-statistics.
All of the equation 3 coefficients are significantly different from the equation 4 coefficients at the 5% level.

statistically different from the income elasticity estimated for state-owned housing. It is surprising that the cooperative housing elasticity did not prove to be much higher. Apparently, the bureaucratization of the cooperative formation procedures in the Northern republics to some extent inhibits market forces in distribution of cooperative apartments there. The income elasticity in the Southern subsample is quite high. However, one must keep in mind that the estimates presented in equation 2 of Table 9 are based only on 16 observations and, therefore, are not very reliable. The same caveat applies to the family size coefficient which is not statistically different from zero. With these reservations let us note that the income elasticity of cooperative housing consumption in the Southern subsample is significantly greater and the influence of family size is significantly smaller than in the North.

0.5 Private Housing

Construction of private housing provides the only significant legal form of investment possibility for Soviet citizens. Private ownership of dwellings also represents ideologically the least acceptable major form of housing. Nonetheless, it has been tolerated and even encouraged throughout Soviet history with the exception of the period of War Communism. However, since 1964 new construction of private houses is generally not permitted in cities with populations over 100,000. For this reason privately owned houses and apartments are concentrated in rural areas and small to mid-size cities.

Despite these restrictions and government efforts during the past 30 years to

solve the "housing problem" mainly through state investments, individually owned housing constituted 23.2% of the urban housing stock in 1984. In 1977 - the year most relevant to our survey - 491 million square meters of housing space or 24.5% of the urban total was privately owned. Therefore, while gradually declining, the share of private housing remains significant even in urban areas of the USSR.²⁶

At least two remarks are necessary to clarify the nature of individual ownership of houses in the Soviet Union. First, the individuals do not own the land on which their houses are built but only the structures themselves. Second, a couple with minor children can own only one dwelling or part of a dwelling and with few exceptions such a family cannot legally own more than 60 m² of living space. For this reason even the market for private housing in the USSR is significantly different from housing markets in Western countries.

In our survey privately owned housing space constituted a somewhat smaller proportion (17%) of the total than in urban USSR in general (see Table 3). This fact, however, does not affect the results of the regression analysis presented below. As was mentioned, owners of houses as a group had more living space per capita, more rooms per person, less income from official sources, and more total income than the representatives of the other two

²⁶ We would like to emphasize the difference between a privately owned primary residence being discussed in this section and a country house or dacha. Dachas are located in rural areas and usually are not suitable for year-round occupancy. A dacha can, of course, affect its owner's demand for living space in the primary residence but our survey did not allow to incorporate this relationship into the analysis.

housing categories. Also, somewhat more variance in per capita living space was observed among private owners (see Table 6). Other survey data concerning privately owned housing are shown in Table 10.

As could be expected income from official sources and age of a respondent both of which serve as proxies for official status did not exert statistically significant influence on per capita living space in this housing category. Also, only 15 households from the Northern republics resided in private houses which made it impossible to make reliable estimates of an equation with five independent variables for the Northern subsample. Dropping official income and respondent's age variables lead to some improvement in the statistical significance of the remaining coefficients (see equation 1 and 2 in Table 11).²⁷ The influence of both total income and family size variables on the amount of living space in private housing in the North turned out to be greater than in the South. However, these differences were not statistically significant. The income elasticities were again smaller than the ones estimated for Western countries. This is not surprising. While limitations on the size of private houses are not as restrictive as those pertaining to cooperative and state-owned dwellings, they still tend to lower income elasticity of housing consumption. Also, given the dangers of conspicuous consumption based on illegally earned income in the USSR it can be argued that wealthier homeowners would stress improvements in the quality of the interior rather than the size of their

²⁷ The F-test showed that the null hypothesis of the dropped coefficients being zero could not be rejected either for the Northern or the Southern subsample.

Table 10. - Selected Characteristics of Privately Owned Houses (Survey Data, Entire Sample)

Variable	No. of observations	Mean	Standard deviation	Std error of mean
Size of dwelling (sq.m)	85	66.87	51.08	5.54
Number of rooms	86	2.85	0.98	0.11
Cost of house at purchase (rubles)	79	6984	4717	531
Downpayment (rubles)	67	5537	4024	492
Additional costs incurred in acquiring house (rubles)	65	898	2031	252
Monthly payments (rubles)	38	22.11	80.42	12.05
Length of mortgage (years)	34	3.44	3.35	0.58

Note: According to these data an average downpayment amounted to approximately 85% of the cost of a private house which is significantly greater than downpayments on cooperative apartments. Correspondingly, mortgages on private houses extended over short periods of time. Notice also, that additional costs incurred by private owners in acquiring their houses were on average twice as large as those incurred by members of cooperatives. These costs represent expenditures on finishing work, side-payments, gifts, bribes, etc.

houses. As was pointed out earlier, our survey does not allow evaluation of the quality of respondents' housing.

0.6 Concluding Remarks

This paper investigated the main factors influencing consumption of housing in the USSR. The estimates of the (total) income elasticities and family size elasticities for various categories of housing ownership are shown in the table below:²⁸

Type of ownership	Income		family size	
	North	South	North	South
State (t-statistic)	0.235 [*] (8.507)	0.347 [*] (8.491)	-0.520 (-16.762)	-0.605 (-7.644)
Cooperative (t-statistic)	0.171 (2.585)	0.572 [*] (5.011)	-0.663 (-7.322)	0.164 [*] (0.636)
Private (t-statistic)	0.343 (1.479)	0.216 (3.014)	-0.973 (-2.760)	-0.780 (-6.319)

The respondent's age variable which accounts for waiting period in obtaining housing and in part for official status proved to be important in allocation of state-owned housing only.

28. The entries marked with stars represent the estimates which differ significantly between North and South. Also, the reader is reminded that the estimates for cooperative housing in the South and for privately owned houses in the North were obtained on the basis of only 16 and 13 observations, respectively. Obviously, caution must be exercised in interpreting these estimates.

Table 11. - Multivariate Regression Estimates: Privately Owned Housing
(All Variables are in Logarithms)

Independent Variables	Dependent Variable - Per Capita Living Space			
	Equation 1 (North)	Equation 2 (South)	Equation 3 (North)	Equation 4 (South)
INTERCEPT	0.027 [§] (0.010)	1.922 [§] (2.029)	1.015 [§] (0.517)	2.135 [§] (3.712)
OFFICIAL INCOME	-0.049 [§] (-1.185)	0.020 [§] (0.990)	-	-
TOTAL INCOME	0.295 [§] (1.289)	0.187 [§] (2.400)	0.343 [§] (1.479)	0.716 [§] (3.014)
FAMILY SIZE	-0.805 [§] (-2.542)	-0.824 [§] (-5.609)	-0.973 [§] (-2.760)	-0.780 [§] (-2.319)
AGE OF RESPONDENT	-0.416 [§] (-1.089)	0.099 [§] (0.577)	-	-
Number of Observations	16	97	16	97
Adj. R-square	0.587	0.533	0.544	0.537

§ - Significant only at 10% significance level

§ - Not significant

Note: The figures in parenthesis are values of the t-statistics.
None of the equation 3 coefficients are significantly different from the equation 4 coefficients.

One of the interesting issues which has not been addressed so far is the extent to which income elasticities differ across the alternative forms of housing ownership. To determine this we compared the regressions presented in Table 12 with the regressions for each ownership category analyzed in the previous sections. An F-test showed that it is not possible to reject the null hypothesis of equal (total) income elasticities of consumption of state-owned, cooperative, and privately owned housing for Northern subsample. In the Southern subsample none of the income elasticities were statistically distinguishable from the one for state housing. However, an F-test rejected the hypothesis of all three of them being the same jointly. Also, as was mentioned earlier income elasticities for the are significantly greater than for the Northern one for state-owned and cooperative housing, while the elasticities for private housing are statistically indistinguishable. These results suggest that in a given geographical region of the country market forces affect distribution of all major categories of residential housing to about the same extent. Notice, however, that both in the North and in the South, our estimates of income elasticities are considerably lower than could be expected in a country with a free housing market. Apparently, administrative rationing and restrictions on per capita living space still play important roles in allocation of housing in the Soviet Union. Our conjecture is that most high income households do not attempt to violate these quantitative restrictions beyond a certain limit but try instead to improve the quality of their dwellings in terms of location and interior.

The fact that the estimates of income elasticities are statistically indistinguishable among different categories of housing ownership supports

Table 12. - Comparison of Regression Coefficients for Various Types of Housing Ownership
(All Variables are in Logarithms)

Independent Variables	Dependent Variable - Per Capita Living Space	
	RD21H	SQUIN
Intercept	-0.386 ^f (-1.475)	-0.639 ^g (-1.400)
Dummy for Cooperative Housing (COOP)	2.193 (3.523)	-1.568 ^f (-1.193)
Dummy for Private Housing (PRIVATE)	1.401 ^h (1.100)	2.775 (2.715)
Total Income	0.249 (9.717)	0.309 (0.210)
Product of COOP and Total Income	-0.078 ^f (-1.071)	0.223 ^h (1.469)
Product of PRIVATE and Total Income	0.095 ^h (0.633)	-0.133 ^h (-1.760)
Family Size (State Housing)	-0.509 (-16.032)	-0.600 (-7.393)
Product of COOP and Family Size	-0.154 ^h (-1.570)	0.764 (2.569)
Product of PRIVATE and Family Size	-0.464 (-2.057)	-0.180 ^g (-1.332)
Age of Respondent (State Housing)	0.376 (9.021)	0.305 (3.305)
No. of Observations	656	320
Adj. R Square	0.510	0.653
† - Significant only at the 7% level		
‡ - Not significant		

Note: A coefficient in front of a product of a dummy variable and a continuous variable represents the difference between the coefficient of that continuous variable for state-owned housing and the coefficient of the same variable for another type of housing ownership. For detailed explanation of a similar technique see p. 25 of this paper.

the proposition that the costs of acquiring extra living space in state-owned housing through the second economy or by other means are comparable to those associated with procurement of more space in a cooperative flat or a private house. This proposition has an important implication for the effect of a state housing subsidy on the real income of its recipients. A sizeable proportion of state housing residents, especially those who enjoy better than average housing conditions, can be assumed to have used their monetary resources or connections ("social capital") to obtain that housing. They could have bribed the officials responsible for housing allocation decisions, or made side-payments during apartment exchange, or bought membership in a housing cooperative for their children. In any case these households have paid for the subsidy with real resources, and therefore the low rents at least on the "purchased" portion of the apartment represent part of the return on their investment. This is not to say that a bribe to an official or a side-payment during exchange have to be equal to the present value of the housing subsidy on the additional living space acquired in this fashion. The equilibrium market price of housing need not be equal to its cost as expressed in official Soviet prices. However, it must be understood that the housing subsidy as part of a household's real income, is often offset by the outlays incurred by the household in order to increase its enjoyment of state housing.

In view of this argument, one cannot analyze the effect of the state housing subsidy on income distribution in the country by simply adding the amount of the subsidy to the incomes of state housing residents in the approach utilized by Daniel [1983 and 1985] in her analysis of public housing in Hungary. However, while the subsidy is not necessarily beneficial to its

immediate recipients, it is not harmless either. The existing institutional structure in the USSR hinders the work of market forces in the allocation of housing and facilitates development of parallel markets. The efficiency of parallel markets, even in absence of risk, is questionable.²⁹ In addition, the risk present in each significant parallel market transaction in the housing area increases transaction costs in that market, further augmenting its inefficiency.

29. See for example Stahl and Alexeev (1985)].

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